

PENDING CLAIMS

This listing of the claims is presented without amendment for the convenience of the Examiner:

1-5. (Cancelled)

6. (Previously Presented) A data transmission system for use in a machine, comprising a plurality of drive systems each comprising an associated control functional unit wherein each control functional unit only controls the drive system to which it is associated, control computers associated to each drive system linked through a first control network and coupled with said control functional units to perform high level process control; a second independent network interconnecting said control functional units for real time cross-communication there between, whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units.

7. (Previously Presented) The data transmission system according to claim 6, wherein the real-time cross-communication can be carried out using Ethernet links.

8. (Previously Presented) The data transmission system according to claim 6, wherein the control functional units can be synchronized by means of Ethernet real-time cross-communication.

9. (Previously Presented) The data transmission system according to claim 6, wherein data and synchronization signals from drive regulators can be interchanged with an associated control functional unit using Ethernet real-time communication.

10. (Previously Presented) The data transmission system according to claim 6, wherein the machine is a printing machine.

11. (Previously Presented) The data transmission system according to claim 6, wherein each drive system comprises a plurality of drive regulators coupled with each respective control functional unit.

12. (Previously Presented) The data transmission system according to claim 11, wherein the drive regulators of one drive system are linked through a third network selected from the group consisting of a ring network, a serial network, and a star network.

13. (Previously Presented) The data transmission system according to claim 12, wherein the third network is a real-time Ethernet network.

14. (Previously Presented) The data transmission system according to claim 6, wherein the first network is used to transmit non-time critical data or parameters.

15. (Previously Presented) A data transmission system for use in a printing machine having a distributed control functionality and a networked complex movement control, comprising:

a plurality of drive systems each having a plurality of drive regulators arranged in a group, wherein all drive regulators arranged in a group are linked by an associated ring network and each drive system comprises an associated control functional unit wherein each control functional unit only controls the drive system to which it is associated;

a plurality of control computers each coupled through a first control network with an associated control functional unit;

a second independent network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units through said second network.

16. (Previously Presented) The data transmission system according to claim 15, wherein the real-time cross-communication can be carried out using Ethernet links.

17. (Previously Presented) The data transmission system according to claim 15, wherein data as well as synchronization signals from the control functional units can be exchanged with said drive regulators by means of Ethernet real-time cross-communication.

18. (Previously Presented) A data transmission system for use in a machine having a plurality of drive systems, comprising

a plurality of control functional units each control functional unit being associated to only one drive system,

a plurality of control computers each control computer being associated to only one drive system and the plurality of control computers being linked through a control network and coupled with said control functional units to perform high level process control;

an independent Ethernet network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units.

19. (Previously Presented) A data transmission system for use in a printing machine having a distributed control functionality and a networked complex movement control, comprising:

a plurality of drive systems each having a plurality of drive regulators arranged in a group, wherein all drive regulators arranged in a group are linked by an associated ring

network and each drive system comprises an associated control functional unit wherein each control functional unit only controls the drive system to which it is associated;

a plurality of control computers each coupled through a control network with an associated control functional unit;

an independent Ethernet network interconnecting said control functional units for real time cross-communication there between,

whereby information relating to movement control from any one of said control functional units is simultaneously transmitted to all of the other of said control functional units through said second network.

20. (Previously Presented) The data transmission system according to claim 6, wherein each drive system comprises a plurality of drives and associated drive regulators arranged in a group, wherein all drive regulators arranged in a group are linked by an associated ring network.